

Advances in Clinical Studies of Tuina Intervention for Insomnia

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Abstract:

In modern society, insomnia has developed into one of the major problems plaguing people's lives. As one of the traditional Chinese medicine (TCM) treatment methods, Tuina has the characteristics of safe, effective, and environmentally friendly, and has great advantages in the intervention of insomnia. This paper lists the relevant literature on Tuina intervention for insomnia in recent years, reviews the advances in clinical studies of Tuina intervention for insomnia, and aims to supply references for clinical treatment of insomnia.

Keywords: *Tuina, Insomnia, Classification, Intervention.*

I. INTRODUCTION

Insomnia, also known as “Bumei” (sleeplessness) in traditional Chinese medicine (TCM), is a sleep disorder in which people have trouble sleeping. It is characterized with a subjective dissatisfaction with the duration and quality of sleep that affects daily activities in severe cases. Suffering from the disease for a long time may lead to mental illness such as depression and anxiety and physiological problems such as metabolic abnormalities and social dysfunction. With the high pressure and fast pace of life, insomnia has become a prominent health problem in modern society, as its incidence increases gradually and the onset age is trending younger. Tranquilizers and hypnotics are the first-line treatments in modern medicine. However, long-term use of these drugs is associated with addiction and easy recurrence after drug withdrawal; and the long-term use of high doses of hypnotic medications will produce unavoidable adverse reactions such as nervous system damage. TCM has been accepted by the broader masses with its holistic theory of “diagnosing symptoms based on disease development, and treating them based on individual needs” and the advantages of noticeable curative effects and fewer side effects [1]. TCM has a long history of and rich experience in insomnia treatment, and Tuina manipulation, one of the most common treatment methods, plays a significant role in insomnia intervention therapy.

II. MECHANISM OF TUINA INTERVENTION FOR INSOMNIA

According to *Huangdi Neijing (The Yellow Emperor's Canon of Internal Medicine)*, “Yang enters the Yin level, merging with Yin, to result in sleeping, Yin then dominates the body. Yang re-emerges from Yin, to result in waking up.” TCM recognizes that insomnia occurs when the pathogenic Qi invades the zang-fu

viscera, causing a stagnation that blocks the defensive Qi flow to Yin [2]. As an important hub connecting internal organs and the external environment, the meridian network runs Qi, blood, essence, and body fluid circulate through the body and defend the body against disease and pathogens. When the meridians are unobstructed, the zang-fu viscera are full of Qi and blood, and the nutrient and defensive Qi are abundant; only then can one obtain a peaceful sleep [3].

Tuina improves the circulation of Qi and blood in the meridians by stimulating the skin and connective tissues, promoting blood circulation, and increasing blood and oxygen supply of the tissues to achieve the effect of regulating Qi and blood and balancing Yin and Yang. Studies have shown that Tuina also helps the cerebral cortex and all levels of vital centers maintain the best condition for relaxation response by regulating the autonomic nervous system, stimulating the cerebral cortex, and inhibiting the hyperactivity of the brain [4]. In summary, Tuina can comprehensively regulate the circulatory and nervous systems, enabling one to restore a regular sleep pattern, which in turn achieves the purpose of treating insomnia.

III. CLASSIFICATION OF INSOMNIA

Insomnia can be classified according to the different etiologies. In this paper, Insomnia is mainly categorized into insomnia due to dysfunction of zang-fu viscera, insomnia due to Yin-Yang imbalance, and insomnia due to musculoskeletal compression.

3.1 Insomnia Due to Dysfunction of Zang-Fu Viscera

Based on the TCM differentiation of syndromes of zang-fu viscera, insomnia due to dysfunction of zang-fu viscera falls into two groups: excess syndrome and deficiency syndrome. According to the textbook *Chinese Internal Medicine*, the excess syndromes are syndrome of liver fire disturbing the heart and syndrome of phlegm-heat disturbing the heart. The three types of deficiency syndrome are the syndrome of dual deficiency of the heart and spleen, syndrome of heart and kidney failure in interaction, and syndrome of Qi deficiency in the heart and gallbladder.

3.1.1 Excess syndrome

Syndrome of liver fire disturbing the heart: Often due to deep-seated emotions that impair the liver's function of conveyance and dispersion and stagnate the liver Qi which transforms into heat that disturbs the mind and brings about insomnia. In Lu's [5] randomized controlled clinical trials, 100 patients with insomnia due to liver fire disturbing the heart were randomly assigned into a treatment group and a control group (n=50). The subjects in the treatment group were treated with Shuganxiehuo (soothe the liver and purging fire) mind-tranquilizing massage, while the control group was treated with a regular Tuina therapy. After two courses of treatment, it was found that the total effective rate was 98% in the treatment group and 76% in the control group, with a statistically significant difference ($P < 0.05$). It can be concluded that Shuganxiehuo mind-tranquilizing massage has a good clinical effect on insomnia due to liver fire disturbing the heart.

Syndrome of phlegm-heat disturbing the heart: Often due to excessive consumption of food that leads to the accumulation of phlegm in the middle Jiao, further affecting the functional activities of spleen and stomach, leading to failure of the stomach Qi to descend, which again turns into heat and disturbs the mind. As stated in *Su Wen- On Regulating Meridian*, "Stomach problem resulting in disturbed sleep." The fundamental cause of this type of insomnia is the spleen and stomach disharmony. Cong [6] randomly assigned 63 patients with insomnia due to disharmony of the spleen and stomach into groups. 32 participants in the experimental group were treated with acupuncture and Tuina, while 31 in the other group were treated with acupuncture alone. The efficacy, adverse conditions, sleep quality, and quality of life were compared after 1 month of treatment. It was found that the result of the experimental group was significantly better than the control group ($P < 0.05$), as evidence that Tuina has a remarkable curative effect on insomnia due to disharmony between the spleen and stomach.

3.1.2 Deficiency syndrome

Syndrome of dual deficiency of the heart and spleen: Mental or physical strain impairs the heart and spleen, which fails to nourish the heart with fresh blood, bringing about a disquieted heart spirit and chronic insomnia. Dong Na et al. [7] studied 30 patients with insomnia due to deficiency of the heart and spleen. They compared the abdominal and forehead temperature with infrared thermal imaging before and after abdominal Tuina treatment. After one month of continuous treatment, the results showed that the total effective rate was 93.33%. Qu et al. [8] studied 60 insomnia patients with deficiency of the heart and spleen by randomly dividing them into an observation group ($n=30$) and a control group ($n=30$). The patients in the observation group received head Tuina and the spleen acupoint Tuina from 9 to 11 AM, while the patients in the control group were treated with the regular head Tuina outside of 9 to 11 AM. After 2 weeks of treatment, the observation group had significantly greater sleep quality improvement than the control group ($P < 0.05$), as well as the conditions of social dysfunction. It proved that Tuina was an effective treatment for insomnia due to deficiency of both the heart and spleen.

Syndrome of heart and kidney failure in interaction: Yin blood Insufficiency due to old age or prolonged weakness of the body consumes heart Yin and Kidney Yin, resulting in water (kidneys) failing to coordinate with fire (heart). The hyperactivity of the heart fire gives rise to a restless spirit and a troubled mind, presenting as insomnia as a result. Li et al. [9] randomly divided 66 patients with insomnia with heart and kidney failure in interaction into a treatment group ($n=33$) and a control group ($n=33$). The treatment group was treated with Tuina of "Three Powers" and the control group was given orally administered estazolam. After two courses (1 month) of treatment, the sleep quality of each group both evidently improved, but the curative effect had no significant difference ($P > 0.05$), indicating the potential of Three Powers Tuina as an alternative therapy for oral estazolam. Ding [10] randomly divided 100 insomnia patients with heart and kidney failure in interaction into treatment group ($n=50$) and control group ($n=50$). The treatment group participants were treated with head Tuina combined with music therapy, while the control group received oral lorazepam before bedtime. After continuous treatment for half a month, the total effective rate in the treatment group was 94%, and the effective rate in the control group

was 76%, with a significant difference ($P < 0.05$), suggests that Tuina intervention for insomnia with heart and kidney failure in interaction shows a greater advantage compared to western oral medicine.

Syndrome of Qi deficiency in the heart and gallbladder: Emotions such as shock and worrying deplete the gallbladder Qi and affect the heart. Sufferers of this condition find themselves easily frightened and keep awakening throughout the night. Chen et al. [11] treated a total of 92 patients with insomnia, including 17 insomnia patients with Qi deficiency in the heart and gallbladder, with the combination therapy of "Tuina based on Yin-Yang regulation" and "five-elements music." The sleep quality of the patients was significantly improved after one week of treatment ($P < 0.05$). In conclusion, Tuina is an effective treatment for insomnia due to Qi deficiency in the heart and gallbladder.

3.2 Insomnia Due to Yin-Yang Imbalance

Based on the record of *Su Wen- The Union of Heaven and Human Beings*, "Only when the Yin remains calm and harmonious will the Yang Qi be contained and not be overly expansive, the spirit normal, and the mind clear." One can only sleep when Yin and Yang reach the balance. With hyperactivity of Yang due to Yin deficiency, the path of Yang Qi entering Yin is blocked, resulting in insomnia as Yang fails to fold into Yin.

Pan [12] conducted a randomized controlled trial on 60 patients with primary insomnia. They were assigned to a treatment group of ($n=30$) in which patients were treated with modified "Tuina based on Yin-Yang regulation", and a control group ($n=30$) in which patients were administered with estazolam orally. After treating Tuina three times a week for at least 3 months, the effective rate of the treatment group was 93.33%, and that of the control group was 83.33%. The therapeutic effect of the treatment group was significantly better than that of the control group in sleep quality ($P < 0.05$), and the anxiety and depression caused by the insomnia of the patients had been greatly relieved. It has been shown that appropriate Tuina therapy is curative effective to Insomnia due to Yin-Yang imbalance and is beneficial to other adverse insomnia-related symptoms.

3.3 Insomnia Due to Musculoskeletal Compression

Cervical insomnia is the main representative of insomnia due to musculoskeletal compression. Strain, trauma, or disease may lead to Cervical joint dislocation or hyperplasia, and cervical muscle strain or spasm, causing pressure on blood vessels, nerves, and other tissues on the neck, resulting in sympathetic nerve compression and high-level brain excitability, which are the causes of insufficient sleep time and sleep quality.

Huang et al. [13] evaluated the clinical efficacy of Differentiation Tuina. He randomly divided 100 patients with cervical insomnia into an observation group ($n=50$) and a control group ($n=50$). The control group was treated with cervical traction neck Tuina, and the observation group was treated with differentiation Tuina once a day on the basis of the control group. After the 12-day course of treatment, the

effective rate of the observation group was 95.56%, and that of the control group was 72.72%. The curative effect of the observation group was significantly better than that of the control group ($P < 0.05$). Wang et al. [14] randomly divided a total of 100 cases of patients with cervical insomnia into the control group ($n=50$) and the observation group ($n=50$). The control group was administered with estazolam, and the observation group was treated with Tuina. Both groups were treated for 10 days. The total effective rate was 94.00% in the observation group, higher than that of 72.00% in the control group, the difference being significant ($P < 0.05$). The application of Tuina has proved effective on Cervical insomnia.

IV. INTERVENTION

As the pathways for the circulation of Qi and blood in the human body, meridians and acupoints are complex in distribution and numerous. The techniques of Tuina are diverse and rich in forms. Different manipulations are applied to target different types of insomnia, making the selection of the appropriate Tuina method a focus of clinical research.

4.1 Differentiation Tuina

Differentiation Tuina adopts the TCM syndrome differentiation to the Tuina manipulation and acupoint selection to regulate the Qi movement of zang-fu viscera with different etiologies and pathogenesis to achieve the purpose of eliminating stagnation of Qi and blood and improving sleep.

Wang [15] classified 100 cases of insomnia patients based on TCM syndrome differentiation and assigned them into an experimental group ($n=50$) treated with dialectical Tuina and the control group ($n=50$) treated with conventional western medicine. Both groups have Yanglingquan, Yinlingquan, Sanyinjiao, and Juegu as the fixed points, and the acupoints and manipulation of Tuina in the experimental group were adjusted according to the patient's differentiation. The anteroinferior lateral fibular of the patients were repeatedly massaged from top to bottom, and the abdomen was alternately massaged clockwise with both hands at the same time. After the treatment, the total effective rate of the experimental group was 95.45%, which was significantly better than that of the control group, 79.55% ($P < 0.05$). Huang et al. [13] applied differentiation Tuina to treat cervical insomnia. Special acupoints according to the syndrome differentiation were added on the basis of cervical traction and neck Tuina. Kneading was applied on Quchi, Hegu, and Shousanli for the syndrome of Qi and blood stagnation; for the syndrome of cold and dampness coagulation and stagnation, first pushed the forehead, and then knead Yintang, Taiyang, Baihui, Zusanli, and ShangQiu; for the syndrome of dual deficiency of the heart and spleen, in addition of Beishu of the bladder channel, knead Shenmen and Sanyinjiao, and applied HuaTuo chiropractic to scrub the Governor Channel simultaneously. For those with the syndrome of Qi deficiency in the heart and gallbladder, first selected Xinshu, Danshu, and Baliao, then heated the lumbosacral area by cross-scrubbing, and finally press Yongquan point on the sole. The above differentiation Tuina methods significantly improved the sleep quality of patients.

4.2 Tuina Based on Yin-Yang Regulation

Defensive Qi circulates in the six Yang Channel during the day and flows into the kidneys from the foot-shaoyin kidney channel at night, circulates in the five zang viscera. Governor channel is the meeting point of Yang channel, while Yin vessels rendezvous at conception vessel, and Yin and Yang intersect on the head and face.

Following are the operation steps: (1) Opening Tianmen: Push two thumbs alternately from ophryon to Baihui; (2) Pushing Kangong: Push the thenars and thumbs from ophryon to temple along with the eyebrows; (3) Press Taiyang: Knead and press the temple; (4) Rubbing Baihui: Knead and press Baihui; (5) Hooking Fengchi, Pressing Anmian: Use the middle fingers to hook from Fengchi to Anmian and then press it; (6) Hooking Lianquan: Use the middle fingers of both hands too hook from the Anmian to Lianquan on the lower jaw, and press it with the fingertips; (7) Press Changjiang: Hold the lower jaw stable with the index fingers, and press Chengjiang with the thumbs [16].

Head is the gathering place of Yang Qi, Yang channels, and fresh Yang Qi of the viscera. Therefore, massage acupoints on the head may refresh the brain, calm the mind, and promote cephalic blood circulation. It starts from ophryon on the governor channel and ends at the Chengjiang on the conception vessel. This is how Qi of Yang channel induced to rendezvous of Yin vessels, balancing Yin and Yang so that one can sleep peacefully.

4.3 Tongdu Tiaoshen Tuina

Zhang [17] randomly assigned 60 subjects with insomnia into a treatment group and a control group with 30 cases in each group. The treatment group was treated with Tongdu Tiaoshen Tuina, applying manipulations such as scrubbing and single-thumb rubbing to massage Baihui of the governor channel to Yaoshu, along with Shenmen, Neiguan, Anmian, and other acupoints. The control group was treated with conventional Tuina manipulation. After continuous treatment for one month, insomnia, anxiety, and depression symptoms in the treatment group were clearly improved. The overall effective rate in the treatment group was significantly higher than that in the control group. It is concluded that Tongdu Tiaoshen Tuina has a better curative effect on insomnia compared to regular Tuina.

4.4 Tuina of Three Powers (Heaven-Human-Earth)

"Three Powers" refers to the powers of heaven, earth, and human, which means upper, middle, and lower part of the body when applied to Tuina.

Following are the operation steps: (1) Head and face: Push the thumbs of both hands alternately straight from ophryon to Shenting, and then forehead to the temple. Press the forehead and eye socket with thenars, squeeze the neck, and press Baihui, Fengchi, and other points; (2) Back and abdomen: With the patient lying on the stomach, press five zang viscera's shu-point on the back and then perform bottom-up

chiropractic three times. When the patient changes to the supine position, rub the abdomen clockwise and vibrate it several times with the palms; (3) Feet: Press the spots corresponding to the cerebrum, cerebellum, and pituitary gland on the foot reflex area, and then press, knuckle, and scrub on Yongquan [9].

4.5 Tuina combination therapy

In addition to the single application of Tuina, there are successful cases of combining Tuina with other TCM methods in the treatment of insomnia, including orally administered herbal prescription, acupuncture, auricular acupressure pill, moxibustion, acupoint catgut embedding, and five-element music. In the face of medical advances, more and more combination therapy has emerged as more targeted treatments for insomnia of different differentiation have become the common pursuit of medical practitioners.

V. CONCLUSION

By summarizing and reviewing the literature on the intervention of TCM Tuina on insomnia in recent years, it is found that there is a wide variation in the classification of insomnia. According to pathogenesis, insomnia can be classified into different aspects, such as zang-fu viscera, Qi and blood, Yin and Yang, and body shape. Tuina has unique advantages in the intervention of various types of insomnia with its diverse techniques. It is of great significance for the clinical treatment of insomnia to match the appropriate therapy more precisely.

Tuina is convenient, with non-toxic side effects and remarkable clinical efficacy. When combined with other TCM intervention methods, it has proven to be helpful in treating insomnia. Therefore, we should probe more deeply into the therapeutic effect of Tuina on insomnia, take the cream and discard the dross, to make Tuina more widely promoted and may play an even greater role in clinical treatment.

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